The toxicity observed in both schedules is summarized in table 1.
Table 1:

	5Gy x 6	5Gy x 3	7Gy x 4	7 Gy x 2
Number of patients	85	86	46	39
Proctitis grade				
0	98%	97.7%	100%	97.5%
1	0%	2.3%	0%	2.5%
2	2%	0%	0%	0%
3	0%	0%	0%	0%
4	0%	0%	0%	0%
Vaginitis grade				
0	87.2%	91.9%	97.9%	97.5%
1	5.8%	5.8%	2.1%	2.5%
2	7%	2.3%	0%	0%
3	0%	0%	0%	0%
4	0%	0%	0%	0%
Cystitis grade				
0	89.5%	83.8%	95.7%	89.9%
1	5.8%	4.6%	4.3%	7.6%
2	4.7%	11.6%	0%	2.5%
3	0%	0%	0%	0%
4	0%	0%	0%	0%

Conclusions: The treatment planification of HDR brachytherapy with CT images and 3D dosimetry allows to know the dose received in the volume of the organs at risk and also a good optimisation of the treatment.
The treatment was very well tolerated and there was no grade 3-4 toxicity in our patients.

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Toxicity in adjuvant vaginal cuff brachytherapy in endometrial cancer: our experience

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Purpose/Objective: Toxicity evaluation of exclusive adjuvant vaginal cuff High Dose Rate Brachytherapy (HDR-BT) in patients with endometrial cancer.
Materials and Methods: From 2009 to date, 53 patients were treated in our institution with HDR-BT, with a median age of 65 years. 52 patients underwent hysterectomy for endometrioid cancer and 1 for transitional cell carcinoma. FIGO and grading staging were 14-IA, 35-IB, 4-IIA, 8-G1, 31-G2, 14-G3. No patients received external-beam radiation therapy or chemotherapy. Before Computed Tomography (CT) simulation, women underwent a gynecological examination in order to determine the size of the vaginal cylinder that will fit the patient. CT simulation was performed with 2.5 mm CT slice thickness with empty rectum and the treatment cylinder in the vaginal cavity. Before CT scan patients drank 500 cc of water after voiding bladder ; this preparation was repeated before each fraction in order to reproduce bladder's filling conditions used for the planning. Upper 3-3.5 cm of the vaginal vault were treated. Patients received five fractions each of 600 cGy for a total dose of 3000 cGy prescribed at 0.5 cm from the applicator surface. During the radiation therapy course, patients received supportive therapy with hyaluronic acid vaginal suppositories. A low-fat diet with the addition of lactobacilli was suggested. Use of vaginal dilators was not prescribed. Gastrointestinal (GI) and Genitourinary (GU) toxicity were evaluated by RTOG score. Late toxicity effects were also analysed in 26 patients with a median follow-up of 37 months by using the RTOG late-effect score. According to our protocol, gynaecological exams were scheduled every 3 months for two years and then every 6 months up to five years.
Results: Eighteen patients experienced acute GU toxicity: 10 Grade 1 (G-1), 6 G-2, and 2 G-3. Regarding early GI toxicity, 9 cases of G-1 toxicity and 2 of G-2 occurred.Four patients experienced GU late toxicity: 3 G-2 and 1 G-3. No one complained of GI late toxicity. Ten patients presented vaginal stenosis during the gynaecological examinations. This side effect made the patients' follow-up difficult because of greater difficulty in viewing the vaginal vault; also four women complained of dyspareunia
Conclusions: In our experience, vaginal-vault HDR-BT treatment is well tolerated, with a very low GI toxicity score. Vaginal stenosis appears to be the principal disorder observed in long-term follow-up. In order to improve this safe technique, we think that could be reasonable to prescribe the use of the vaginal dilator not in all patients, but only in those women in which the stenosis occur.

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Radiobiological evaluation of HIPO inversely planned pulsed-dose-rate brachytherapy for cervical cancer

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Purpose/Objective: The aim of this study was to assess through radiobiological evaluation the ability of the hybrid inverse planning optimization (HIPO) system to produce dose distributions comparable or superior to the clinically accepted ones devised using graphical optimization (GRO) for cervical cancer patients treated with pulsed-dose-rate brachytherapy.
Materials and Methods: Six cervical cancer patients treated with external radiotherapy and pulsed-dose-rate brachytherapy were included in this study. The patients received 50 Gy (25 x 2 Gy) as external radiotherapy and 24 Gy (3 x 8 Gy) as pulsed-dose-rate brachytherapy planned using GRO performed in Oncentra® Brachy treatment planning (Nucletron, an Elekta Company). An alternative brachytherapy plan was made in HIPO using volumetric